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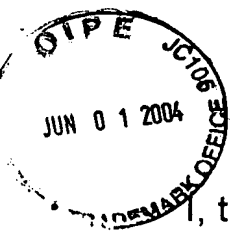
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Docket No.: WEB-39899



CERTIFICATION

I, the below named translator, hereby declare that: my name and post office address are as stated below; that I am knowledgeable in the English and German languages, and that I believe that the attached text is a true and complete translation of Austrian Application No. A 2141/2000, filed December 22, 2000.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Hollywood, Florida

A handwritten signature in cursive script, appearing to read "Christine Kahl".

Christine Kahl

May 26, 2004

Lerner & Greenberg, P.A.
P.O. 2480
Hollywood, FL 33022-2480
Tel.: (954) 925-1100
Fax.: (954) 925-1101

The invention relates to a charging mechanism for a baking oven for the production of baked molded bodies where the upper and lower baking plates, which define the top and bottom sides of the baked molded bodies, with their baking surfaces facing one another pass through a baking line which extends in longitudinal direction of the baking oven, an input station being positioned ahead of the baking line, through which the bottom baking plates pass facing upward in a horizontal path.

Baking ovens where, with their baking surfaces determining the top and bottom side of the baked molded bodies, upper and lower baking plates which face each other with the baking surfaces, pass through a baking line which extends in longitudinal direction of the baking oven, are used for the production of wafers which are crispy when baked as well as for the production of wafers which are soft when baked. These baking ovens each have an input station for the liquid wafer dough which is positioned ahead of the baking line. This dough is poured by a pouring device which is stationary or which can be moved with the lower baking plates onto the upwardly facing baking surfaces of the bottom baking plates which pass the input station in a horizontal path. The portioning of the liquid waffle batter either takes place ahead of time with the batter pump which is positioned ahead of the pouring device or at the individual outlet openings of the pouring device by means of valves which are actuated externally. In these ovens, only liquid batter is used which is frothed by contact with the hot baking plates and distributed to the boundaries of the cavity of the respective baking molds formed by two baking plates, the baking surfaces of which face each other, by means of the steam generated in the batter. The pouring devices distributed at the input stations of the known baking ovens are not suitable for charging molds with non-liquid batters.

The object of the invention is to create an output device for non-liquid batters that have already been pre-portioned into individual batter pieces.

According to the invention, this object is solved in that the charging device comprises a setting device for setting batter portions on the baking surfaces of the bottom baking plates at predefined locations which is situated in the input station above the path of the bottom baking plates, which is temporarily movable jointly with the bottom baking plates.

The inventive charging device is disposed beneath the discharge station of a transport device that is disposed ahead of the baking oven, which feeds the batter portions thereto. The charging device accepts the batter pieces discharged by the transport device and deposits them on the bottom baking plates at predetermined locations with a time delay. At the beginning of a movement cycle of the charging device, the setting device is in its rear terminal position beneath the discharge station of the transport device. The setting device remains in its rear terminal position until the batter pieces have exited the transport device and arrived at the setting device. Next, the setting device is moved in synch with the bottom baking plates in the transport direction thereof and the batter pieces wander along the setting device to the predetermined setting locations and there drop from the setting device and onto the underlying baking surface of a bottom baking plate. The setting device is moved in synch with the bottom baking plates until all batter pieces are released therefrom and have arrived at their predetermined setting location on the baking surface of the bottom baking plate. Upon reaching its forward terminal position, the now empty setting device is moved counter to the transport direction of the bottom baking plates back into its rear

terminal position, and the next movement cycle of the charging device starts.

With the inventive charging device, the batter pieces are deposited on the bottom baking plates next to one another in the positions predetermined by the setting device.

The setting device can be constructed for a single-row delivery of batter pieces to the lower baking plates of the baking oven, whereby only one row of adjacent batter pieces extending transverse to the baking oven are taken over by the setting device and deposited on the baking surface of a bottom baking plate.

The setting device can also be designed for a double-row delivery of the batter pieces, whereby two rows of batter portions, situated one behind the other in the longitudinal direction of the oven, are taken over from the setting device and are situated on only one lower baking plate or on two lower baking plates disposed one behind the other in the longitudinal direction of the oven.

The setting device can also be designed for multi-row delivery, whereby three or more transverse rows of batter pieces are accepted by the setting device and deposited on one or more lower baking plates.

The inventive charging device deposits the batter pieces adjacent one another at intervals on the baking surface of a bottom baking plate. In order to close the baking mold, the appertaining top baking plate is lowered or swung down onto the bottom baking plate. The batter pieces situation on the backing surface of the lower baking plate spaced apart at a distance from each other are thereby flattened by the surface

of the top baking plate and pressed apart laterally in the mold cavity defined by the two baking surfaces. During the baking process, the flat batter pieces become individual molded bodies which are laterally irregularly limited, whose top and bottom sides correspond to the surface regions of the baking surfaces of the top and bottom baking plates which define the relevant molded body above and below, respectively.

With the inventive charging device, it is also possible to charge an oven with batter pieces in such a way that the baking surfaces of the baking plates form several adjacent halves, separated by ridges, of adjacent baking molds. The setting locations that are predetermined by the setting device are then oriented to the bottom halves of the molds, so that the batter piece allocated to each bottom half is set on the bottom baking plate in the respective mold half.

The inventive charging device makes it possible to set identical or different batter pieces on the bottom baking plates. The batter pieces can have the same batter weight but come from different batters or from batters made with different ingredients (coarse sugar, white chocolate pieces, bitter chocolate pieces, fruit pieces, raisins, nut pieces, cheese pieces, etc.). The batter pieces can consist of a solid dough. The batter pieces that are simultaneously set on a bottom baking plate can also have different batter weights.

The batter pieces can also consist of a kneadable yeast dough mixed with sugar pieces, such as the dough utilized for Liege waffles. The sugared yeast dough is divided into pieces of equal weight, which are then set aside so that the individual pieces are relaxed by the self-fermenting yeast dough, and their volume is expanded. The dough pieces are set aside in transverse rows on the revolving hangers of a fermentation

cabinet. They rise as they pass through the climate controlled interior of the cabinet on the racks. The transit time through the cabinet corresponds to the resting time provided for the dough. At the end of this time, the risen dough pieces, the volume of which has increased, and the batter of which has become finer, are discharged from the fermentation cabinet and transferred to an inventive charging device, which sets down the slightly different dough pieces next to one another on the bottom baking plates of an oven. The deposited dough pieces are then simultaneously vertically compressed and horizontally spread out by the top baking plates of the oven. This produces the wafer pattern typical of Liege waffles on the top and bottom of each individual dough piece.

According to another feature of the invention, the setting device can have a slide that can be moved back and forth in the longitudinal direction of the oven, which is provided with receiving trays, arranged adjacently in the transverse direction of the oven, for the dough pieces, whereby each receiving tray is provided with a bottom opening facing the baking surfaces of the bottom baking plates for outputting the dough pieces. This design facilitates the simultaneous depositing of a large number of dough pieces, the weight of which is accepted by the slide when the dough pieces hit the receiving trays or as they migrate in the receiving trays to the bottom output opening under the gravitational force acting on them and there fall on the baking surfaces located therebelow.

According to another feature of the invention, at least two transverse rows of adjacent receiving trays for the dough pieces can be provided on the slide, with one behind the other in the longitudinal direction of the oven. This construction

allows the parallel depositing of several rows of dough pieces while also extending the time available to each individual dough piece for migrating through the charging device.

According to another feature of the invention, the dough receiving trays can be fastened on a continuous transport chain that revolves on the slide in the transverse direction of the oven, on the path of which a cleaning station can be provided for the dough piece receiving trays disposed laterally next to the path of the lower baking plates. This development is advantageous for sticky dough pieces, because the dough particles that remain stuck on the surfaces of the trays through their migration can be removed in the cleaning station before they accumulate so much that they excessively impede the sliding of the dough pieces on the surface of this tray.

According to another feature of the invention, a cleaning station can be provided beside the path of the bottom baking plates in stationary fashion which can comprise a cleaning device for the receiving trays which is attached to the frame of the oven.

According to another feature of the invention, a cleaning station that is movable with the slide can be provided, which comprises a cleaning device for the trays that is attached to the slide.

According to another feature of the invention, the path of revolution of the transport chain can comprise two branches extending across the oven in the transverse direction in each of which the receiving trays that are fixed to the transport chain form a row extending in the transverse direction. This construction is advantageous, particularly for sticky pieces

of dough which leave small pieces of dough on the surface of the receiving trays when moving through the trays which can be removed by the receiving trays in the cleaning station.

According to another feature of the invention, each dough piece receiving tray comprises a funnel-shaped upper part and a sleeve-shaped lower part surrounding its output opening. This construction is advantageous for dough pieces consisting of a kneadable yeast dough, which rise and subsequently have an easily compressible consistency. These dough pieces change their shape under the effect of gravity alone, both in the release from the transport mechanism positioned ahead of the charging mechanism and in striking the receiving trays of the setting device.

The invention will now be described in connection with the drawings. The drawings show:

- Fig. 1 a schematic side view of the input station of an oven with an inventive charging device at the beginning of a charging cycle;
- Fig. 2 the charging device of Fig. 1 similar to Fig. 1 at the end of a charging cycle;
- Fig. 3 a schematic side view of an inventive charging device, which is disposed between the output station of a fermentation cabinet and the input station of an oven;
- Fig. 4 a detail of a transitory mechanical coupling of the setting device with the revolving baking plate chain of the oven;

- Fig. 5 a top view of the charging station arranged above the bottom baking plate of the oven;
- Fig. 6 a top view of the charging station of Fig. 5;
- Fig. 7 a top view of the input station of an oven with a charging device, with the dough piece setting device in its rear terminal position;
- Fig. 8 the charging device of Fig. 7 similar to Fig. 7 with the setting device in its front terminal position;
- Fig. 9 a front view of a charging device disposed above the bottom baking plates and beneath the output station of a fermentation cabinet; and
- Fig. 10 a front view of charging device disposed above the bottom baking plates of an oven and beneath the output end of a continuous transport belt that transports the dough pieces disposed in transverse rows behind each other to the oven.

Figs. 1-6 represent the input station 1 of an elongated oven 2 for producing baked molded bodies where the top and bottom baking plates 3, 4, the baking surfaces of which determine the top and bottom sides of the baked molded bodies, with their backing surfaces facing each other, run through a baking path 5 extending in longitudinal direction of the oven 2. The input station 1 is disposed upstream thereof through which the bottom baking plates 3 pass in a horizontal path facing upward. The top and bottom baking plates 3, 4 revolve in opposite directions in the oven 2 on separate paths and are moved by separate continuous conveyors 6, 7. At the beginning of the baking line 5, the top baking plates 4 are placed on

the bottom baking plates 3 and the dough pieces put that have been deposited on the bottom baking plates 3 are compressed and locked between the baking plates disposed on top of each other.

A charging device 8 for the dough pieces is disposed in the input station 1 above the path of the bottom baking plates 3 which comprises a setting device 9 which is temporarily movable jointly with the bottom baking plates 3 for the dough pieces which are to be deposited on the baking surfaces of the bottom baking plates 3 at the predefined locations.

The discharge station 10 of a fermentation cabinet 11 is arranged above the charging device 8 which has two parallel revolving continuous transport chains 12 on which tiltable boards 13 are suspended on which a predetermined number of dough pieces are adjacently arranged. The dough pieces respectively consist of an elastic, kneadable dough which is mixed with a raising agent. The dough pieces spend their rest period, during which the dough rests and the dough pieces rise, on the tiltable boards 13 of the fermentation cabinet 11 which reach the output station 10 of the fermentation cabinet 11 at the end of the resting period. There, two respective adjacent tiltable boards 13 are simultaneously tipped, and the dough pieces that sit next to one another in a row thereon drop down from the fermentation cabinet 11 and into the charging device 8, landing on the setting device 9 therein.

The setting device 9 comprises a slide 14 above the bottom baking plates 3 of the oven which can be moved back and forth in the longitudinal direction of the oven and which bears receiving trays 15 for the dough pieces, these being arranged adjacently in the transverse direction of the oven. The receiving trays 15 are provided with a bottom output opening

16 which faces the baking surfaces of the bottom baking plates 3.

The slide 14 sits on guides 17 that extend in the longitudinal direction of the oven 2 and is led thereon so as to be displaceable in the longitudinal direction of the oven 2. These guides 17 are arranged in the oven frame 18 beside the path of the bottom baking plates 3. A pivoting dog 19 is provided at the slide 14 for engaging with retaining elements 20 that are attached on the bottom baking plates 3. In the rear terminal position of the slide 14, the dog 19 is lowered and comes in contact with the retaining elements 20, in order to carry the slide 14 by the bottom baking plates 3 in its direction of travel. In the forward position of the slide 14, the dog 19 is pivoted up and lifted off the retaining elements 20 of the bottom baking plates 3. The slide 14 is then moved along the guides 17 in the oven frame 18 back into its rear terminal position by means of a compressed air cylinder which is not represented.

On the slide 14, a continuous transport chain 21 is mounted, which revolves in the transverse direction of the baking oven 2 and is driven by a motor that is arranged beside the path of the baking plates. The receiving trays 15 are fastened to this transport chain 21, in the path of revolution of which a cleaning station 22 is provided laterally next to the path of the bottom baking plates 3 for the receiving trays 15. At the cleaning station 22, there is a cleaning device 23, which clears dough residues from the trays 15 and their bottom output openings 16 by means of brushes 24 that move up and down vertically.

The trays 15 each have a funnel-shaped top part 24 whose top opening is larger than the dough pieces that are received and

a sleeve-shaped lower part 25 which surrounds their bottom output opening 16.

The dough pieces 26 can also be fed to the inventive charging device 8 by a conveyor belt 27 that terminates above it (Fig. 10).

The inventive charging device can also be utilized in a baking oven where the top and bottom baking plates which, with their baking surfaces, determine the top and bottom sides of the baked molded bodies are received in baking tongs that can fold open and closed, which pass through the input station folded open by more than 90 degrees.

Claims

1. A charging mechanism for a baking oven for the production of baked molded bodies where the upper and lower baking plates, which define the top and bottom sides of the baked molded bodies, with their baking surfaces facing one another pass through a baking line which extends in longitudinal direction of the baking oven, an input station being positioned ahead of the baking line, through which the bottom baking plates pass facing upward in a horizontal path, *characterized in that* the charging device (8) comprises a setting device (9) for setting batter portions on the baking surfaces of the bottom baking plates (3) at predefined locations which is situated in the input station (1) above the path of the bottom baking plates (3), which is temporarily movable jointly with the bottom baking plates (3).

2. Charging mechanism as claimed in claim 1, characterized in that the setting device (9) comprises a slide (14) that can be moved back and forth in the longitudinal direction of the oven (2), which bears receiving trays (15) that are configured adjacent one another in the transverse direction for the dough pieces, whereby each tray (15) being provided with bottom output openings (16) facing the baking surfaces of the bottom baking plates (3) for the dough pieces.

3. Charging mechanism as claimed in claim 2, characterized in that the slide (14) bears at least two rows of trays (15) which are arranged consecutively in the longitudinal direction of the oven (2) next to each other for the dough pieces.

4. Charging mechanism as claimed in claim 2 or 3, characterized in that the dough receiving trays (15) are fastened on a continuous transport chain (21) that revolves on

the slide (14) in the transverse direction of the oven (2), on the path of which a cleaning station (22) can be provided disposed laterally next to the path of the lower baking plates (3) for the dough piece receiving trays (15).

5. Charging mechanism as claimed in claim 4, characterized in that a cleaning station is provided beside the path of the bottom baking plates in stationary fashion which comprises a cleaning device for the dough piece receiving trays which is attached to the frame of the oven.

6. Charging mechanism as claimed in claim 4, characterized in that a cleaning station (22) that is movable with the slide is provided, which comprises a cleaning device (23) for the dough piece receiving trays that is attached to the slide.

7. Charging mechanism as claimed in one of claims 4-6, characterized in that the path of revolution of the transport chain (21) comprises at least two branches extending across the oven (2) in the transverse direction in each of which the receiving trays (15) that are fixed to the transport chain (21) form a row extending in the transverse direction of the oven (2).

8. Charging mechanism as claimed in one of claims 2-7, characterized in that each dough piece receiving tray (15) has a funnel-shaped upper part (24) and a sleeve-shaped lower part (25) surrounding the output opening (16).

Summary

Charging mechanism for a baking oven (2) for the production of baked molded bodies where the upper and lower baking plates (3, 4), which define the top and bottom sides of the baked molded bodies, with their baking surfaces facing one another pass through a baking line (5) which extends in longitudinal direction of the baking oven (2), an input station (1) being positioned ahead of the baking line, through which the bottom baking plates (3) pass facing upward in a horizontal path. The charging device (8) comprises a setting device (9) for setting batter portions on the baking surfaces of the bottom baking plates (3) at predefined locations which is situated in the input station (1) above the path of the bottom baking plates (3), which is temporarily movable jointly with the bottom baking plates (3).

Fig. 1

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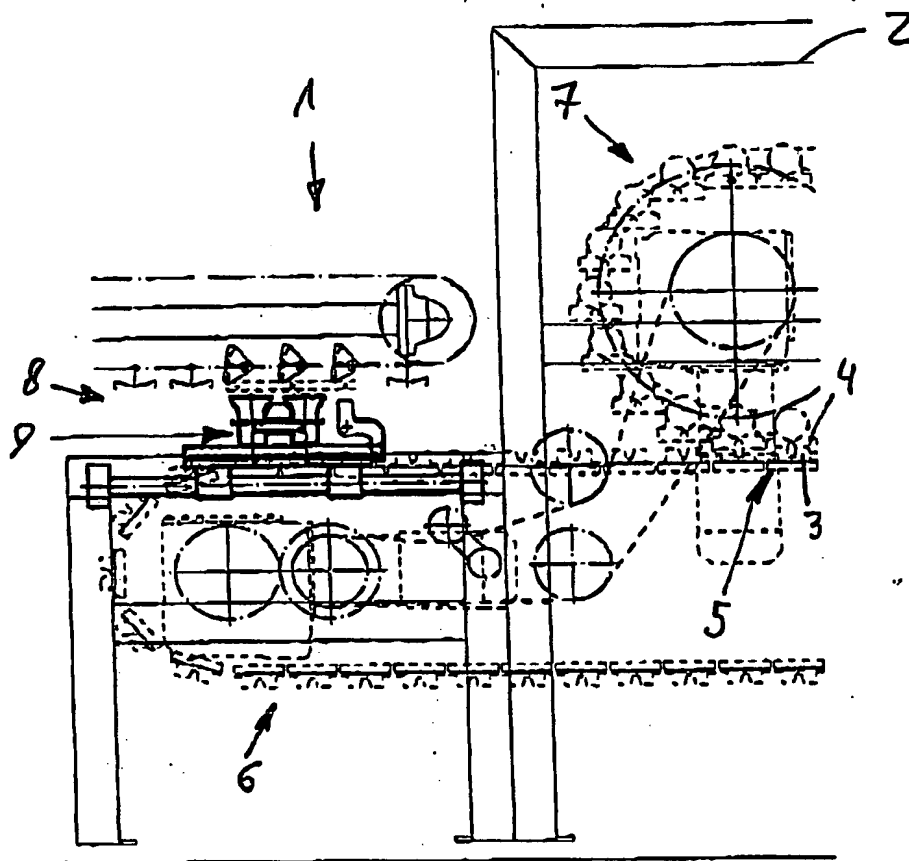


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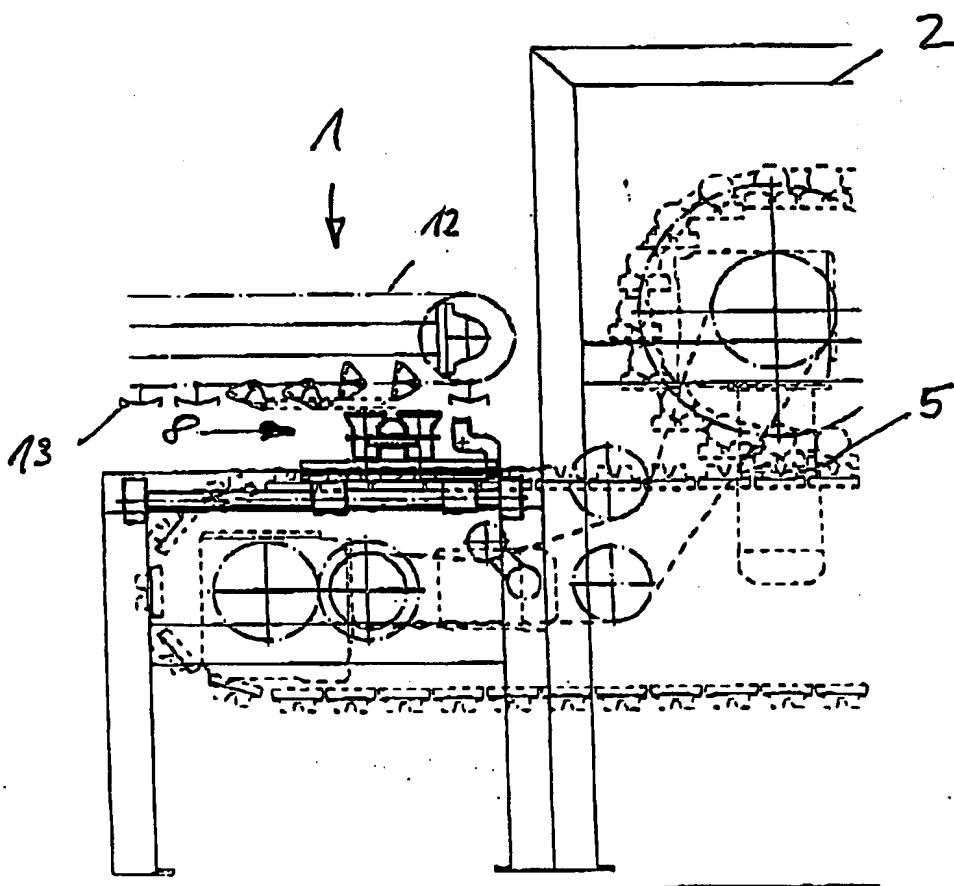


Fig. 2

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Fig. 3

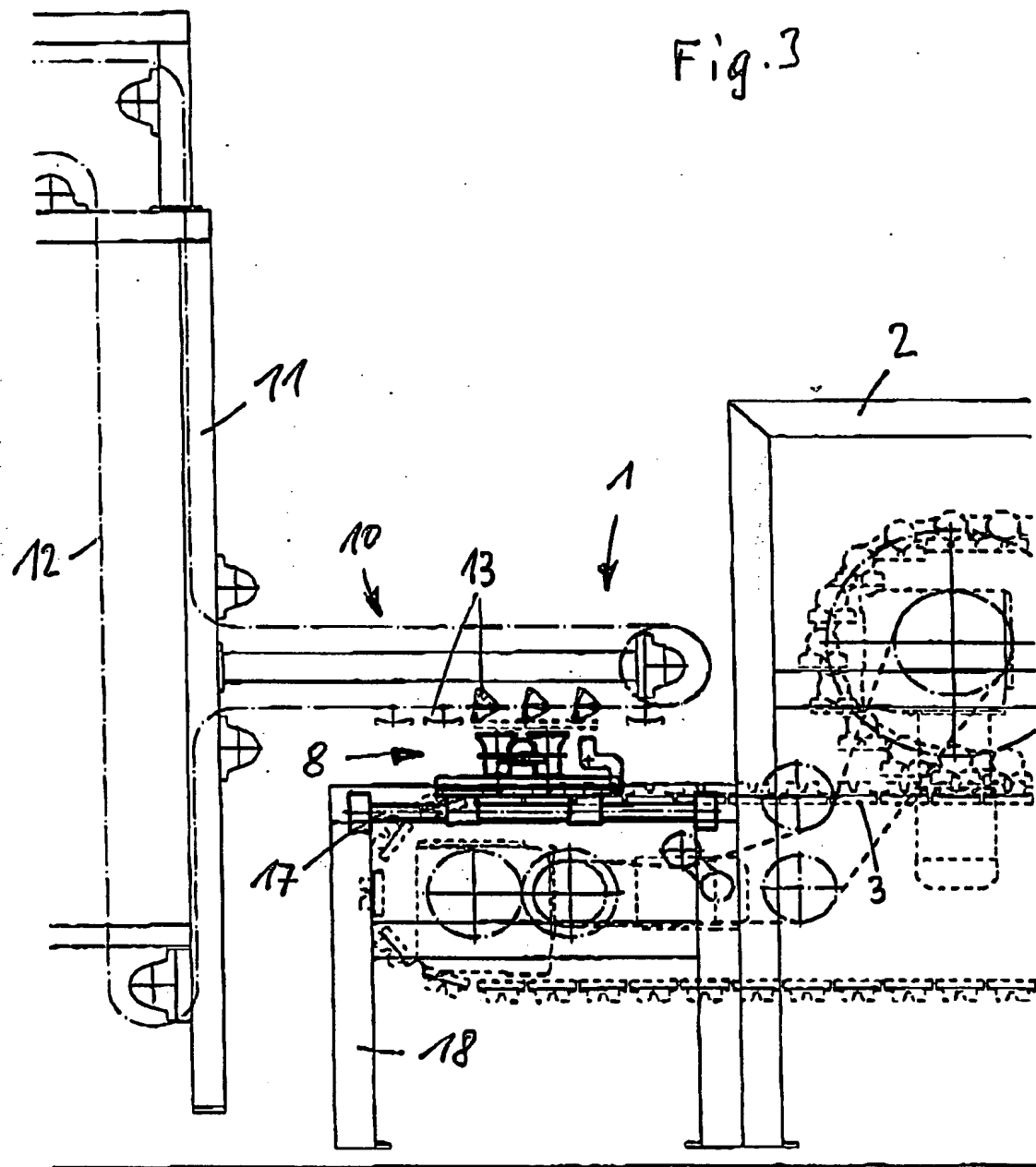
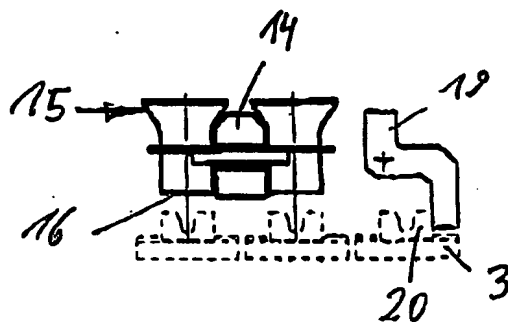


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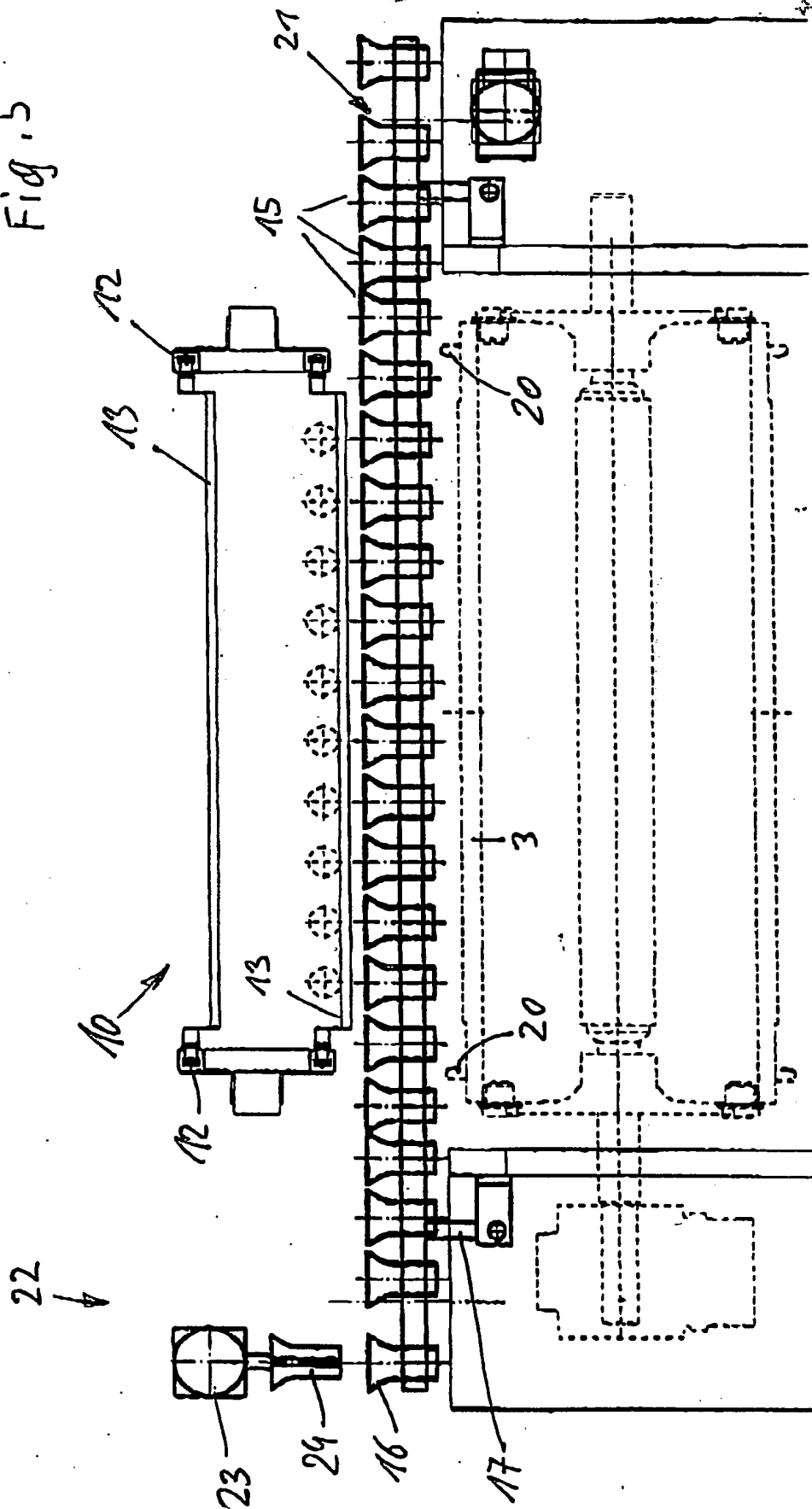


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Fig. 5

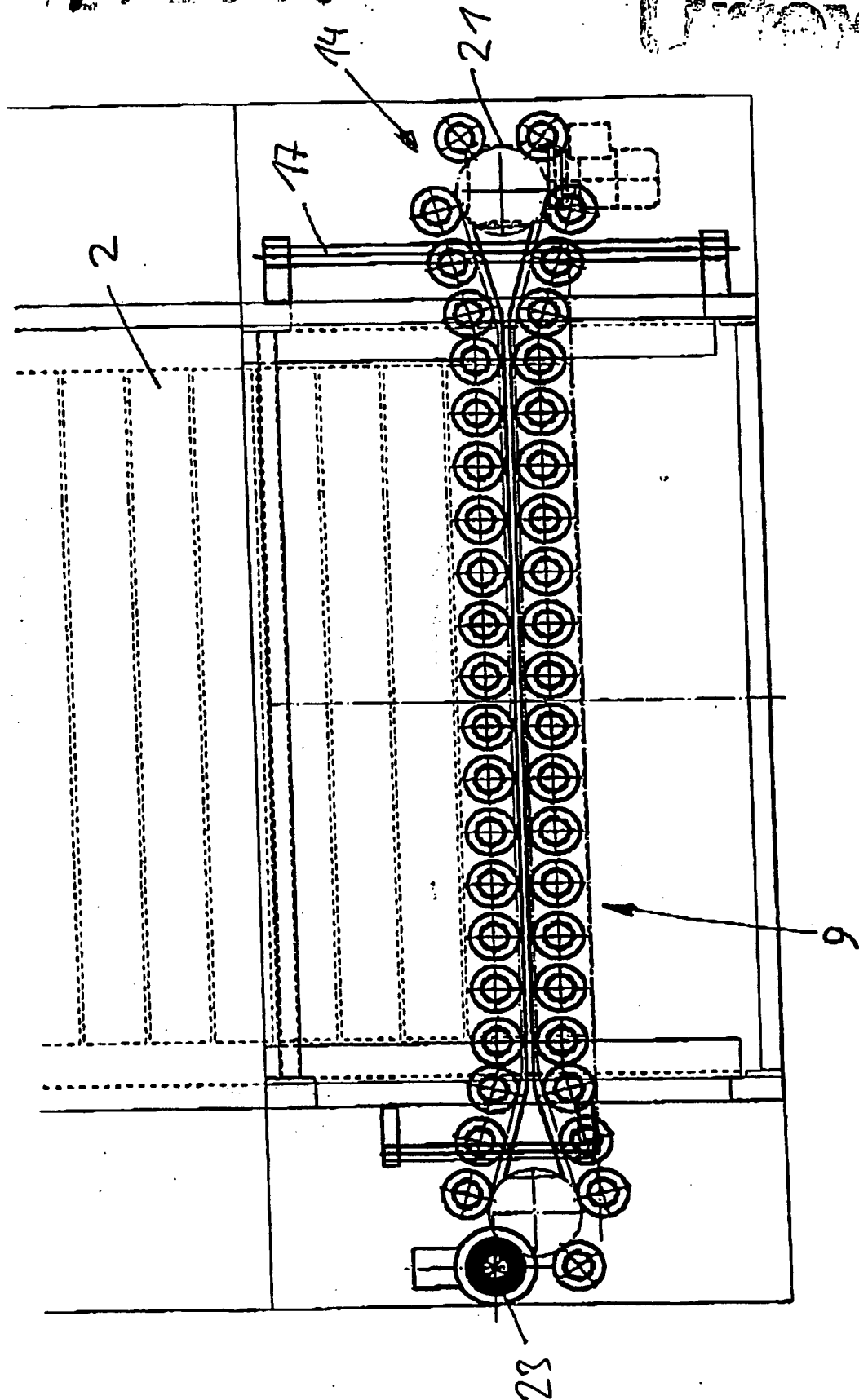


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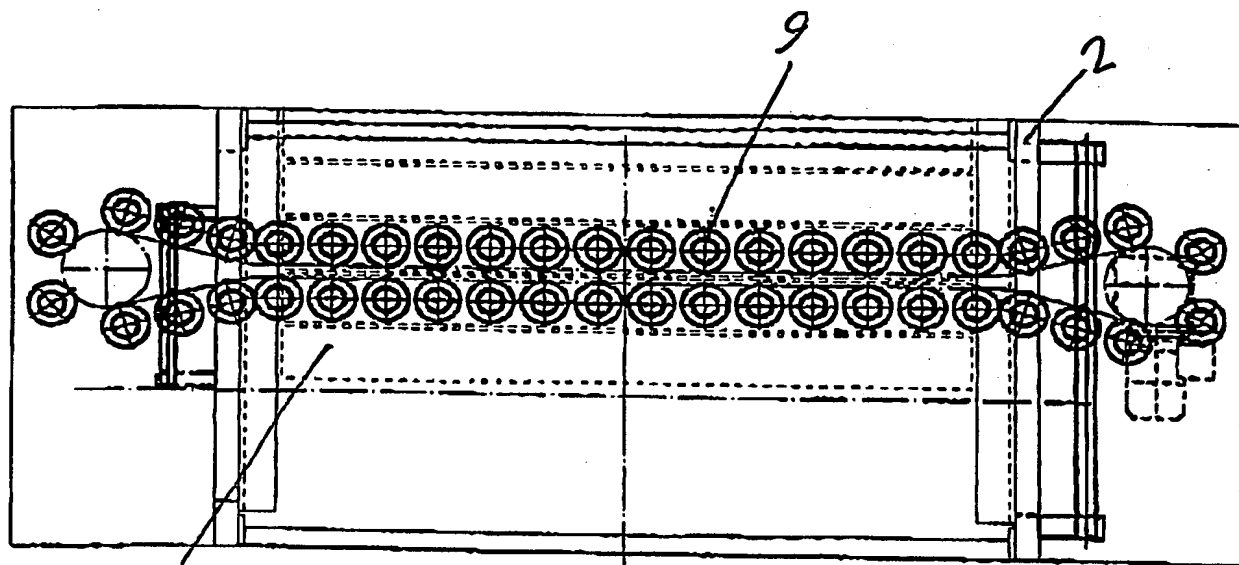
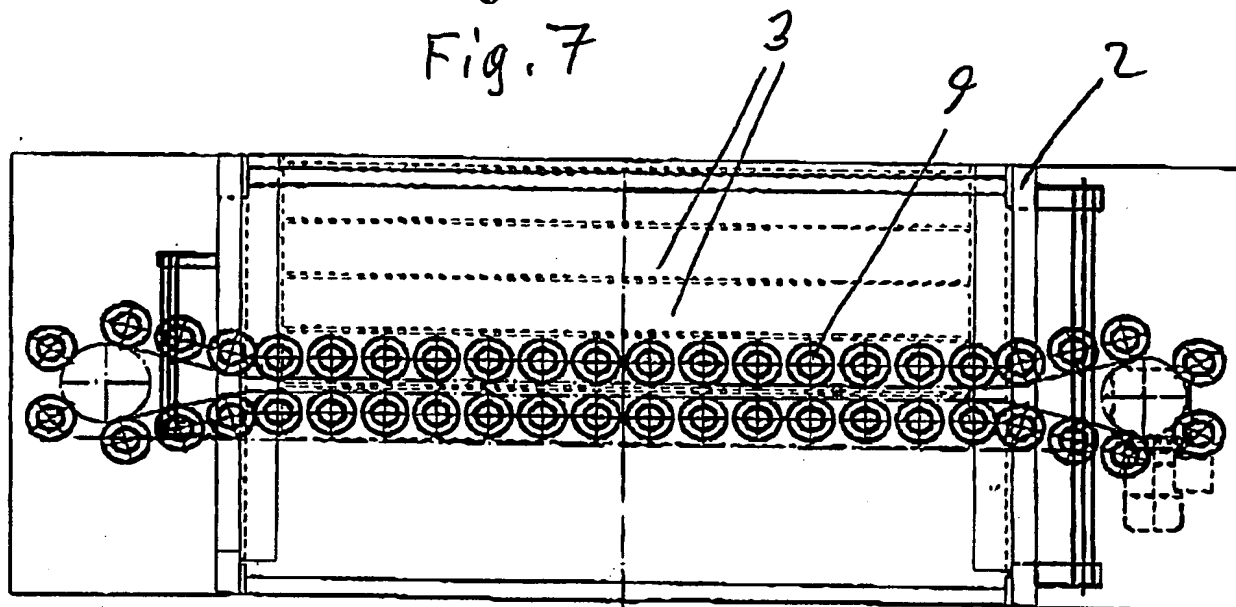
Fig. 6



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Fig. 7



3 Fig. 8

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Fig. 9

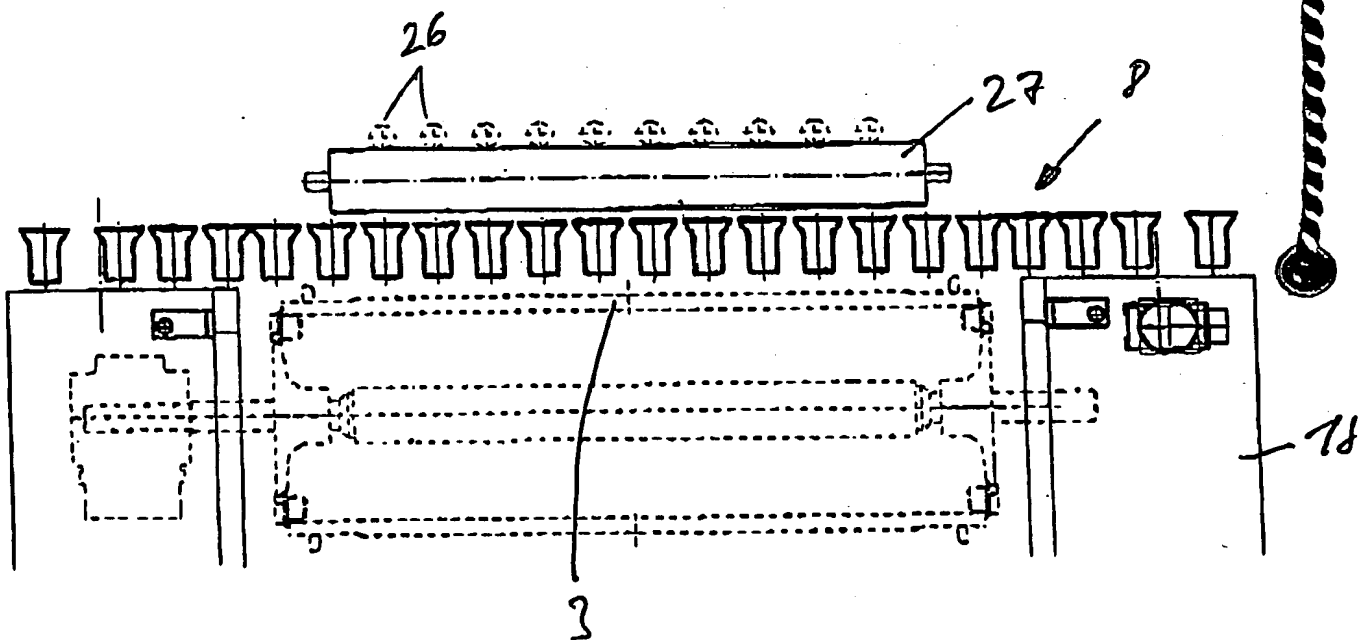
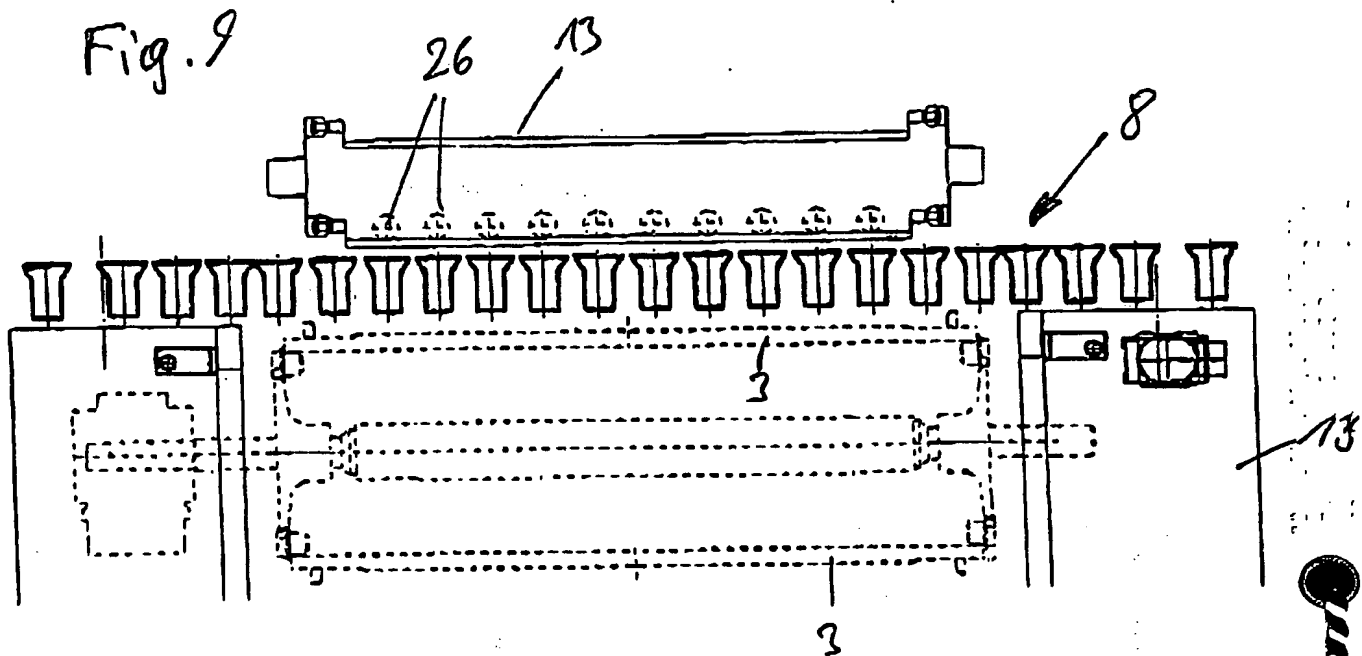


Fig. 10